

Threshold Points and Oscillation Criteria for Differential and Difference Equations

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Abstract

Some of the presented results were obtained in collaboration with Kōdai Fujimoto and Jiřina Šišoláková (see the references below). The results describe the oscillatory properties of second-order equations. The aim is to use the adapted Prüfer angle (differential equations) and variants of the Riccati method (difference equations) to obtain oscillatory criteria based on measuring the size and comparing the coefficients of these equations. The ideal result is an unimprovable situation where a threshold value is identified, traditionally called the critical oscillation constant (although it is not a constant in the usual sense, i.e., it is not a number, but a combination of coefficients that change for the studied equations). The results are obtained for half-linear equations (in fact, we proved them for linear equations as well).

References

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